

MATERIA MEDICA, THERAPEUTICS, HYGIENE.

SKIN, GRAFTING.

THE operation of skin grafting, says Dr. R. J. Levis, of the Pennsylvania Hospital, is now conclusively accepted as one of the resources of surgery.

The utility of the transplantation of minute pieces of skin to granulating surfaces has been demonstrated in a vast number of instances. It is admitted that, by creating centres of eccentric cicatrization on extensively ulcerated surfaces, the rapidity of the healing process can be much increased. Ulcers of a chronic character, which have obstinately resisted cicatrization in a concentric direction, can be healed by the ingrafting of new centres of germination in the midst of the areas of ulceration. Experience has also shown that the procedure is applicable to plastic surgery in facilitating the cicatrization of surfaces denuded by gaping in the division of cicatrices, and in the sliding of flaps of integument.

Besides the increase in the rapidity of healing, due to extending the lines of cicatrizing edges, a decided and important physiological influence is exerted by the presence of the grafts on ulcerated surfaces. The surface of an indolent ulcer seems to be stimulated to renewed vital action, and the increased healing impulse even influences to active germination the peripheral limits of an ulcer in which granulation has long entirely ceased.

The utility of skin grafting has, in my observation, been in no instances more demonstratively shown than in cases of extensive denudation caused by destruction of skin, as in burns, and loss of large areas of integument from traumatic injuries. In the case of a man whose back was extensively charred at a lime kiln, while lying under the toxic influence of its emanations, the sloughing integument having left an immense area of ulceration over his dorsal and lumbar regions, the successful ingrafting of numerous minute pieces of skin healed the vast ulcer with astonishing rapidity. In an instance of the entire loss of the skin of a leg, caused by deeply burning with coal oil, which had filled a shoe and saturated a stocking, the healing process was by the same procedure rendered as surprising and satisfactory.

It seems now probable that amputation, which, as a final resource, is by surgical authority justified in certain cases of extensive ulcers of the leg which all expedients

have failed to heal, may be substituted by the simple device of skin grafting.

All of the conditions essential to successful skin grafting I have not, after extended observations, fully determined. The most favorable condition for the development of the grafts is certainly that of healthy, active granulation of an ulcer; and the more nearly this state is approached, the greater, as a rule, will be the success.

One of the beneficial claims for skin grafting is with reference to the avoidance of the eventual contraction which disfigures, deforms, and impairs motion after extensive loss of integument. Observation seems to show that where cutification is rapid from a number of skin-forming centres, the resulting cicatrix is less violently contractile in its tendency.

For successful skin grafting it is simply essential that a minute portion of skin be removed from a sound part of the body or the patient, or from another individual, and placed on an ulcerated surface. It is customary to take the pieces to be transplanted from the patient's own skin, and I have generally chosen locations where the derma is thin, and not densely covered with cuticle as on most of the front of the body, and, as a choice, from the inner surfaces of the arms and thighs. Grafts from the integuments of other individuals develop as readily, and I have frequently practiced removing them from limbs amputated for traumatic injuries, with apparently equal success. To avoid the possibility of conveying some form of specific infection by the process, it is certainly, as a rule, most advisable to transplant only from the patient's own skin.

A graft of skin should merely consist of the simple structures of cuticle and derma, and should avoid the underlying fatty and connective tissues. That even the whole thickness of the derma is not essential is demonstrated by the fact that successful grafting has been effected by using mere scrapings of the cuticle, in which are contained some cells of the superficial or papillary layer of the derma; but the practice is uncertain and has not practical merit. The thickness of the true skin on the front of the body, it should be borne in mind, does not average from more than a quarter to half a line, and this depth should never be exceeded in the removing of grafts.

The operation of removing the portions of skin for grafting may be done by a knife or scissors, cutting off minute particles of the size to be used immediately in transplanting; or by taking a larger piece, which is to be afterward subdivided. I have adopted a method first suggested to me by Dr. C. H. Thomas, of Philadelphia, which

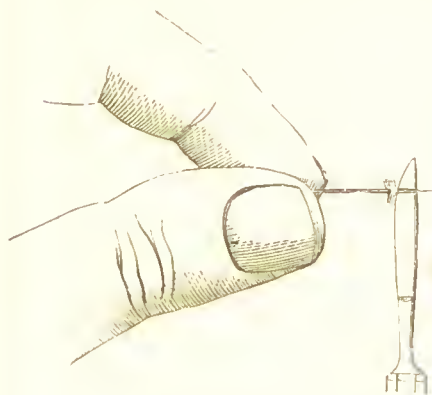
for simplicity, convenience, painlessness and effectiveness may well displace all others.

It consists, as seen in the illustration, in merely penetrating the cuticle with a very delicate sewing needle, elevating a small point, and shaving off the minute elevation of cuticle and upper stratum of derma with a very sharp knife. The same may be accomplished, but hardly in so perfect and painless a manner, by using fine scissors for the excision of the portion transixed.

The operation, if properly performed, should be free from really painful sensation, and patients never object to its most frequent repetition. I have frequently done it without more than a tint of discoloration from blood, and blood need never actually flow from the very minute wound.

The graft is then immediately pushed from the point of

the needle, and placed on the surface of the ulcer, the only care being to lay it with its epidermic surface upward. The graft need not be inserted into the granulating surface by making a wound for its reception, as has been advised and practiced, for such puncture allows a flow of blood that may elevate the graft from contact with the granulations.



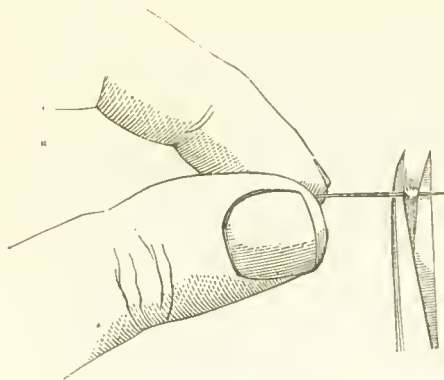
SKIN GRAFTING.

As simple adhesion of the graft is all that is desirable. I have sometimes, with large and actively secreting surfaces, allowed them to be exposed to the dessicating influence of the atmosphere, so that the secretion may become viscid and hold the transplanted particles surely in position. To facilitate the same object of fixation after the grafts are deposited, I have occasionally allowed the ulcerated surface to remain uncovered until they became well agglutinated to it.

All active medication to the ulcer should be avoided, and the surface of ulceration covered with a light pressing, for protection from disturbing influences. For this purpose the ulcer may be covered with a piece of muslin, saturated with oil or covered with cerate, or it

may be merely protected with the waxed tissue-paper, such as is extensively used for general purposes of a dressing in the Pennsylvania Hospital.

On most ulcers the dressing need not be removed for two or three days after the operation; but when secretion is profuse, the ulcer may be washed daily by allowing a stream of water to flow over it, carefully avoiding the wiping of the surface with sponges or cloths, which may disturb the grafts.



SKIN GRAFTING.

One of the earliest changes noticeable in the graft, after the first few days, is the detachment of its cuticle, which may occasionally be seen floating in the secretions of the ulcer, or it may be detached by a slight touch, leaving the true germinating material fixed in position. The graft, as it commences development as a germinal centre, becomes so blended and identified with the granulations as to be for a time almost lost sight of, its reappearance becoming evident in a bluish or lilac-tinted pellicle, which indicates the progress of cutification.

In regard to the size of grafts for transplanting, I have, in several instances, grafted by removing, from recently amputated limbs, pieces of skin measuring one-third or one-fourth of an inch square; but such large pieces are very likely to fail in retaining their vitality, and I have had much more satisfactory success with quite small grafts; and for reasons already stated this latter practice is certainly the best.

The number and position of the grafts will vary in accordance with the size of the ulcerated surface; and in large ulcers they may be distributed at short intervals, both centrally and near the periphery. Those near the circumference will stretch their granulations outward and stimulate the borders of the ulcer to activity; and with regard to the advantage of centrally-located grafts, it will be well to remember their importance with reference to the difficulty often experienced in eventually healing the last of a chronic ulcer. A large ulcer, on which successful grafting has been performed, will soon present islets from

which cicatrization progresses in directions of the nearest healing points until all are joined by an interlacement of newly-formed tissue.

GURJUN OIL IN SKIN DISEASES.

At a late meeting of the Medical Society of London, Professor Erasmus Wilson showed some of this new remedy, and stated that this material, which was also called wood oil, was an oleoresin, obtained from several species of the *dipterocarpus*, an immense tree growing on the Malayan coast of the Bay of Bengal, where it was so common as to be used instead of paint, for houses and ships.

In March, 1873, Dr. Dougall, of the Indian Medical Service, took charge of the convict establishment of the Andaman Islands, where he found twenty-four of the prisoners suffering from leprosy. He was deeply impressed with the misery of these poor people; and realizing the impracticability of availing himself of all known methods of treatment, he hit upon the idea of trying the gurjun oil, both as an internal and external remedy, and determined upon giving it to the most miserable.

He was to have the patients washed thoroughly in a neighboring stream, using dry earth instead of soap. They were then made to rub themselves for two hours with a liniment composed of gurjun oil and lime water, one part to three, and to swallow two drachms of the balsam, also combined with lime water. After this they had their breakfast, and were set to any work they were capable of doing. In the evening the same process was repeated, except the washing. The effects of this treatment, at the end of six months, were marvelous. Neuralgic pains were allayed, sensibility was restored to the anæsthetic skin, tubercles subsided, and ulcers healed. Dr. Dougall was astonished at the energy of these formerly helpless ones.

Mr. Erasmus Wilson remarked that he had used a liniment composed of equal parts of the gurjun oil and lime-water, in cases of painful eczema, in lupus, and in cancer, with very encouraging results, and stated that Mr. Hancock had applied it in a case of cancer of the skin, with the effect of dispersing tubercles and healing ulcerations; but its most useful property was that of relieving pain. A lady in constant pain from cancer of the integument, who had been unable to sleep without narcotics for weeks, was relieved of all suffering, and enabled to sleep, by means of this liniment. Mr. Wilson suggested that this very simple remedy deserved a trial at the hands of the profession. <https://archive.org/details/b22486215>

agent of cure in many affections where the skin was painfully attacked.

CURIOUS EFFECTS OF BRAIN WOUNDS.

IN the recent brilliant address of Professor Huxley, before the British Association, "On the Hypothesis that Animals are Automata," he says :

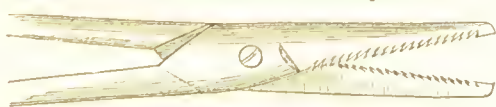
"I am indebted to my friend General Strachey for bringing to my notice an account of a case which lately appeared in the scientific article of the *Journal des Débats*. A French soldier, a sergeant, was wounded at the battle of Bazeilles, one, as you recollect, of the most fiercely contested battles of the late war. The man was shot in the head, in the region of what we call the left parietal bone. The bullet fractured the bone. The sergeant had enough vigor left to send his bayonet through the Prussian who shot him. Then he wandered a few hundred yards out of the village, fell senseless, but, after the action, was picked up and taken to the hospital, where he remained some time. When he came to himself, as usual in such cases of injury, he was paralyzed on the opposite side of the body, that is to say, the right arm and the right leg were completely paralyzed. That state of things lasted, I think, the better part of two years, but sooner or later he recovered from it, and now he is able to walk about with activity ; and only by careful measurement can any difference between the two sides of his body be ascertained. The inquiry, the main results of which I shall give you, has been conducted by exceedingly competent persons, and they report that at present this man lives two lives, a normal life and an abnormal life. In his normal life he is perfectly well, cheerful, does his work as a hospital attendant, and is a respectable, well-conducted man. This normal life lasts for about seven and twenty days or thereabouts out of every month ; but for a day or two in each month he passes suddenly and without any obvious change into his abnormal condition. In this state of abnormal life he is still active, goes about as usual, and is to all appearances just the same man as before, goes to bed and undresses himself, gets up, makes his cigarette and smokes it, and eats and drinks. But he neither sees nor hears, nor tastes nor smells, nor is he conscious of anything whatever, and he has only one sense organ in a state of activity, namely, that of touch, which is exceedingly delicate. If you put an obstacle in his way, he knocks against it, feels it and goes to the one side ; if you push him in any direction, he goes straight on till something stops him. I have said that he makes his cigarettes, but you may supply him with shavings or anything else instead of tobacco, and still he will go on making his cigarettes as usual. His actions are

purely mechanical. He feeds voraciously, but whether you give him aloes, or assafoetida, or the nicest thing possible, it is all the same to him. The man is in a condition wherein the functions of his cerebral hemispheres are, at any rate, largely annihilated. He is very nearly—I don't say wholly, but very nearly—in the condition of an animal in which the cerebral hemispheres are extirpated.

His state is wonderfully interesting to me, for it bears on the phenomena of mesmerism, of which I saw a good deal when I was a young man. In this state he is capable of performing all sorts of actions on mere suggestion. For example, he dropped his cane, and a person near him putting it into his hand, the feeling of the end of the cane evidently produced in him those molecular changes of the brain which, had he possessed consciousness, would have given rise to the idea of his rifle; for he threw himself on his face, began feeling for his cartridges, went through the motions of touching his gun, and shouted out to an imaginary comrade, 'Here they are, a score of them; but we will give a good account of them.' But the most remarkable fact of all is the modification which this injury has made in the man's moral nature. In his normal life he is an upright and honest man. In his abnormal state he is an inveterate thief. He will steal everything he can lay his hands upon; and if he can not steal anything else, he will steal his own things and hide them away."

TOOTH-EDGED CUTTING SCISSORS.

DR. B. W. RICHARDSON says: I have recently had constructed for my use a pair of tooth-edged scissors, on the plan shown in the diagram. The scissors are of the ordinary construction in all respects, except in the cutting



edge. The cutting edge of each blade, instead of being even and sharp, is divided into finely-pointed teeth, each tooth being directed with a slight inclination toward the handle of the scissors. When the blades meet, the teeth cross each other; and as they pierce any structure that may lie between them, they crush, also, between their surfaces.

If a piece of moderately firm substance be placed between the blades—a piece of paper or thin card, for example—the scissors perforate it in a series of perforations resembling what is seen in the postage stamp; that is to say, they do not cut clean through the substance, so as to leave it in two distinct parts at once. A little lateral or half-rotating movement of the closed blades is, however,

sufficient to tear through the still connected lines of substance and to complete the separation. The same occurs if the substance placed between the blades be a portion of soft animal structure, only the more force is required in the lateral or rotating movement to cause complete separation. The parts punctured are crushed between the teeth, and are separated by the twist or torsion.

I find these scissors useful in dividing, directly and quickly, structures in which there are many minute blood-vessels, and which, when divided by the knife, bleed freely. These toothed scissors, as they can be made at one and the same time to pierce, crush, and twist, control bleeding remarkably.

I have put the scissors to a good test in a case of epulis. The tumor was increasing rapidly, and three teeth were involved in it. It was very vascular, had a broad base, and might, at first sight, have been taken for a malignant rather than for a fibrous tumor. The three teeth being extracted, I found I could get a deep grasp of the tumor between the blades of the scissors. I carried the teeth of the scissors well through the base of the tumor, crushing some portion of bone in the way, and gently and easily twisted the mass off, and lifted it away upon the blades without the loss of any blood whatever. The healing in this case was rapid and good. (123)

A NEW PLASTER BANDAGE.

A SURGEON connected with the Southern Dispensary, Brooklyn, N. Y., has recently invented a new method of applying the plaster splint, which, according to the *Tribune*, promises to be an important improvement. A common merino sock is drawn upon the foot and leg. It may extend as far up as is necessary to include the fractured locality. A small rope is run down the back seam in the centre of the leg, around the heel and over the toes, returning up the middle of the instep and front of the leg. Six or seven pieces of flannel are then cut out to fit the leg and foot, allowing for shrinkage. The ends of the bones having been carefully adjusted, the stocking, upon which the rope has been attached as described, is drawn upon the foot and leg. The flannels are soaked in warm water and applied, the plaster of Paris paste being rubbed in with layer after layer. After the last layer has been applied, the plaster is allowed to set. When the plaster has become hard, the splint is perfect, and the patient can get about, on crutches, very comfortably. If the leg swells, and it is necessary to remove the bandage, the whole thing can be done inside of three minutes. The cord that

has been run around the stocking now forms a line of division in the splint. To remove the splint, all that has to be done is to slip out the cord and slit up the stocking along the line where the cord was. Then the splint, divided in halves, can be removed as though it had been laid upon the limb to obtain a cast. Considerable time is thus gained by using this method of applying the plaster splint. When the broken limb becomes inflamed, it also is extremely painful and very tender to the touch. The slightest jar sends a thrill of pain through the body of the patient, who has sometimes been obliged to be chloroformed to enable the surgeon to remove a plaster splint applied with a bandage. By the new method, the limb need hardly be moved or touched.

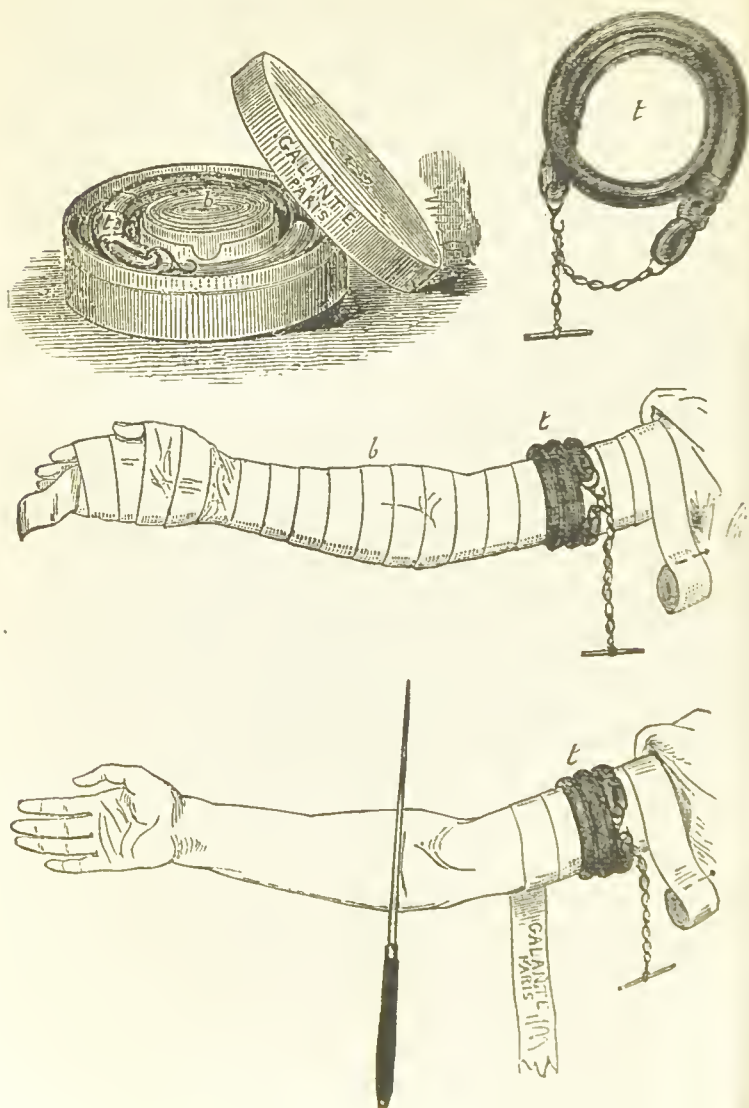
USE OF THE ACTUAL CAUTERY.

THE application of a red-hot iron directly to the living tissues is justly regarded as an extremely painful operation; but if the iron be heated to a white heat, it is absolutely painless. Dr. J. S. Camden, writing in the *Medical Times and Gazette*, recites his experience: "The iron must be heated till it is really of a white heat, and looks almost as white as white paper. If then applied, it destroys the part instantaneously, giving no pain, but it must be removed quickly on the heat decreasing, and then another iron employed. If a red-hot iron only is used, the agony is intense. The first time I saw the cautery used, on a girl of fourteen years, no pain was given; the second time, on an elderly person (both for fungus in the upper maxillary bone), her screeching was fearful, till I told the operator his irons were not half hot enough. He requested me to heat them properly, which being done, not a murmur was heard. The last time was opening four or five sinuses in a horse's shoulder. He never flinched, and scarcely seemed aware of what was being done. I would suggest using—to obtain the white heat for actual cautery—a large spirit blow-pipe."

LAUGH AND BE HEALTHY.—The physiological benefit of laughter is explained by Dr. E. Hecker in the *Archiv für Psychiatrie*: The comic-like tickling causes a reflex action of the sympathetic nerve, by which the calibre of the vascular portions of the system is diminished, and their nervous power increased. The average pressure of the cerebral vessels on the brain-substance is thus decreased, and this is compensated for by the forced expiration of laughter, and the larger amount of blood thus called to the lungs.

BLOODLESS SURGERY.

OUR engraving illustrates the Esmarch process for performing surgical operations without provoking the usual



THE ESMARCH METHOD OF BLOODLESS SURGERY.

hemorrhage. The devices used in connection therewith by the inventor, consist in an elastic bandage, measuring 26 feet in length by 18 inches in breadth, and a tube or cone of strong vulcanized rubber, having a hook at one end and a chain and bar at the other.

The application of the apparatus is very simple. Supposing that an arm is to be amputated, the bandage is tightly wound around the member from the extremities of the fingers up to a little above the point at which the division is to be made. By this uniform compression, the blood is forced back and out of the vessels. At the upper limit of the bandage, the rubber end is passed three or four times around the arm as closely as possible, and fastened in place by the hook and chain, thus preventing the return of the circulation to the member after the bandage is unwound. The latter, on being removed, leaves the arm white and free from blood, and hence ready for the operation, which is accomplished with a very trivial effusion. (9)

IMPROVED LYTOLYCITE.

HENRY W. BRADFORD, Randolph, Mass.—The inner tube of the apparatus is arranged within another tube, which forms the confining tube for holding a bag, and springs within such compress as will admit of inserting both in the bladder and withdrawing them from it. Spring jaws have the edge of the mouth of the bag fastened to them, and are pivoted together at one end, and at the other end are connected to small steel rods between the tubes. These jaws are provided with mechanism so as to grasp the stone, and a small tube of platinum is inserted after the stone has been secured in the bag, for conducting nitric acid into it for dissolving the stone, so that it will flow out through the inner tube. The invention mainly consists of ingenious mechanism for governing the jaws, etc., to understand which a drawing would be requisite.

SUBSTITUTE FOR THE HYPODERMIC SYRINGE.

IN the *Edinburgh Medical Journal*, Dr. John M. Crombie states that many medical men are often deterred from using morphia hypodermically on account of the expense of the syringes, and the pain they cause the patients. To avoid these, he advises the use of small threads coated with morphia and passed through a fold of the skin by fine needles. The threads may vary in strength from one-sixth to one grain of morphia.

CHARCOAL AND TAR AS A SURGICAL DRESSING.

THE London *Lancet* strongly recommends the use of a mixture of charcoal and coal-tar, containing 33 per cent of the latter, in pulverized form, as a dressing for wounds. The powder exercises no irritative action, and is easily removed by lotions of cold water. The charcoal absorbs gases due to fermentation, coagulates the albumen, and prevents decomposition, in this respect materially aiding the action of the carbolic acid contained in the coal-tar. For wounds which can not bear the contact of the powder, 100 parts of pulverized coal-tar are macerated for some hours in 400 parts of rather weak alcohol. The solution is said to be very efficacious.

DANGERS OF METHYLIC ALCOHOL.

SERIOUS maladies, says the Lyons *Médical*, have been engendered among the workmen in two industrial establishments by the employment of methylic alcohol, that is, wood naphtha, or alcohol derived from wood. The material is used in the finishing of felt hats and of silk fabrics. Its action is directly upon the mucous membrane exposed to its emanations, and also, through the nervous system, upon the entire organization.

The effect is first noticed upon the ocular *conjunctiva*, which becomes inflamed and injected, producing a sensation of sand in the eyes. A copious flow of tears and extreme sensibility to light (photophobia) follow, incapacitating the sufferer for work. Further symptoms include intense coryza and inflammation of the pharynx and bronchial tubes, together with trouble of the digestive organs. Severe headaches and feelings of heaviness and depression are always present. The rigor of the malady depends upon the extent to which the person is exposed to the alcoholic fumes. The workman who finishes the bottom of a hat is attacked more severely than the one who prepares the rim. It has also been noticed that cabinet makers who use the material in varnish are frequently attacked with tetanic convulsions of the fingers, unknown previous to the employment of the alcohol.

MEDICINES GIVEN BY ELECTRICITY.

IT is stated that if the substance to be introduced is placed at both poles, and the current reversed every few minutes, an appreciable quantity can be transferred, quite enough in some cases to produce a serious toxic effect upon various animals, and it is confidently expected that human subjects may be treated beneficially.

THE BAMBOO A DANGEROUS POISON.

THE *Strait Times*, a Javanese journal, publishes some novel information on the poisonous properties of the bamboo, which heretofore has been considered one of the most inoffensive of vegetables. The natives of Java use the poison against their enemies, and obtain it by cutting the bamboo at a joint, and detaching from the saucer-shaped cavity, formed by the cane at such portions, some small black filaments, which are covered with almost imperceptible needles. The filaments constitute the venom, against which no remedy has been found to act. When swallowed, instead of passing to the stomach, they appear to catch in the throat and work their way to the respiratory organs, where they immediately produce a violent cough, followed by inflammation of the lungs. The poison, tried upon dogs, produces loss of appetite, severe cough, burning thirst, and gradual emaciation. The animal froths at the mouth, and finally dies by suffocation, as if under the influence of a deleterious gas.

MUSCARIN.

MUSCARIN is a poisonous alkaloid, extracted by alcohol from a species of mushroom (*amanita muscaria*). The most interesting feature of muscarin is its antagonism to atropin. These alkaloids neutralize each other's action on the system so perfectly, that each can be used as an antidote in case of poisoning by the other. The pupil of the eye, enlarged by atropin, is contracted by muscarin. The depression of temperature caused by muscarin, injected beneath the skin, is counteracted by a similar application of atropin; and the heart of a frog, that has ceased to beat from half an hour to an hour, under the influence of muscarin, has been restored to activity by atropin. Possibly quinine sustains a similar relation to the poison inducing intermittent fever that atropin does to muscarin.

NEW LOCAL ANÆSTHETIC.

A CORRESPONDENT of the *Scientific American* says: "If a piece of gum camphor be placed in a phial in which there has been previously placed an equal amount of chloral hydrate, each substance begins slowly to deliquesce, forming a very limpid, viscous, and highly refractive liquid. In the course of a few hours, the solution of the two solids will be complete. I have used this camphor chloral or chloral camphor, as a local anæsthetic in neuralgia, and also as an anterotie and hypnotic in the chordee of blennorrhagia, with considerable success."

ICE AS A MEDICINE.

THE great value of ice in certain diseases is not fully recognized by the medical profession, or by the public. Many years ago, it was found by one of the best English physicians—we think Dr. Marshall Hall—that small pieces of ice thrust into the rectum proved a safe and speedy remedy in cases of dysentery, where opiates and sugar of lead had been tried without effect. Very recently, that distressing complaint to which old people, travelers, and others are liable, retention of urine, has been relieved by the same use of ice as mentioned above. This plan is due to M. Cazenave. Common experience has shown that the swallowing of ice, instead of ice-water, by people, in hot weather, is perfectly safe.

PROF. M. SCHIFF, of Florence, has studied the comparative effects of ether and chloroform on the animal economy. Ether, according to him, is preferable to chloroform as an anæsthetic, because etherization, even when pushed to the very last stage of insensibility, is never dangerous to life, so long as one maintains the act of respiration. And even if one presses the inhalation of ether still further, so that the respiratory movements cease, life is never menaced, if, at the moment of the paralysis of the thoracic walls, artificial respiration is immediately commenced. Chloroform has been preferred to ether because it acts more quickly, and its use is more agreeable to some persons. But chloroform has a paralyzing action much greater than that of ether, and, in like manner, has a special influence on the nerves of the heart, and of the vessels.

CARIES IN THE TEETH.

CAREFUL microscopic examination has shown that caries in the teeth is largely due, not merely to the acids of the mouth, but to a vegetable parasite, *Leptothrix buccalis*. Besides this there are other vegetable and even animal growths; these are not much affected, except as to their abundance, by the ordinary means employed to clean the teeth, but soapy water appears to destroy them. The fungus attains its greatest size in the interstices of the teeth, and after the action of acids, taken with the food or in medicines, or such as are formed in the mouth itself by some abnormality in the secretions, which make the teeth more or less porous or soft, the fungi penetrate the canaliculi both of the enamel and of the dentine, and by their proliferation produce rapid softening and destructive effects.

NEW RESEARCHES ON DIABETES.

DR. PAVY has obtained some experimental results which are likely to throw a new light on the subject of diabetes. He has found that the injection of defibrinated arterial blood into the portal system occasions a saccharine state of the urine. In one experiment, the urine after the operation contained fifteen grains of sugar to the fluid ounce, and in others the quantity has amounted to nearly the same. In the counterpart experiment of injecting defibrinated venous blood into the portal system, the urine showed no signs of the presence of sugar. It thus appears that oxygenated blood passing to the liver causes an escape of sugar from the organ, and thence an accumulation in the system and discharge of the urine. It also appears that through the medium of the respiration of oxygen he has succeeded in inducing a sufficiently oxygenated state of the blood to similarly give rise to the production of saccharine urine. He has further found that through the agency of the inhalation of puff-ball smoke an immediate and strongly diabetic state may be induced, and that the effect is accompanied with such a modification of the circulation that the blood flows through the vessels, as is the case after section of the sympathetic, without becoming properly de-arterialized. His experiments, he considers, suggest that, in diabetes of the human subject, the blood, in consequence of vaso-muscular paralysis, is allowed to reach the portal vein in an imperfectly de-arterialized condition, and thus determines the escape of sugar from the liver. (49)

INTERMITTING LAMENESS.

THE *Doctor* remarks: "A very curious thing has been described by Dr. Sabourin, namely, that lameness may ensue from obliteration of arteries. Horse lameness is often so obscure that any light proves desirable. It is not, however, confined to the horse, but extends also to man. The cause, as observed, is owing to obliteration of the aorta and iliac arteries. Commonly, in previous good health, the subject begins to limp, in one or two limbs to tremble, and finally to fall. Rest is commonly productive of relief. MM. Bouley and Goubaux long ago pointed out the nature of the affection in horses, while M. Charcot first pointed out its occurrence, comparatively rare, in man. Arteritis has been supposed to be the occasion in horses, owing to the violent efforts they have to make, and embolism in men. In any case the occurrence affords a favorable illustration of the advantages of the study of comparative pathology."

CAUSE OF CEREBRO-SPINAL MENINGITIS.

AT a special meeting of the Michigan State Board of Health, held in Detroit, Dr. Henry B. Baker, Superintendent of Vital Statistics in the Secretary of State's Office, and Dr. Bliss, Chairman of the Committee on Epidemic, Endemic, and Contagious Diseases, were recently appointed to visit Petersburg, in Munroe Co., Mich., to inquire into and to collect evidence concerning an outbreak of an epidemic of cerebro-spinal meningitis reported to have broken out in that place. Dr. Bliss was unable, owing to ill-health, to accompany his colleague, and Dr. Baker therefore made the inspection. The result of his inquiries led to the discovery of as many as 77 cases; of which 25, or 32.46 per cent, proved fatal.

The patients generally complained, before the outbreak of acute symptoms, of being tired and lame, and in this state they often continued twenty-four hours; they had also, at the same time, pain in the back of the head and down the spine. The acute attack usually began with a chill and a cold stage; but a few persons were taken as suddenly as if they had been knocked down. Vomiting was a prominent symptom before and after the cold stage. About one-half of the patients were rational throughout the attack, but some had violent delirium from the commencement. There was great tenderness of the body, especially over the deep nerves given off from the spinal column. In many cases the head was thrown back, sometimes to one side; and in some cases the eyes were affected with squint, divergent and convergent. The pupils of the eyes were usually dilated, and the eyelids were powerless, so that the sufferers could not wink the lids. Copper-colored spots appeared upon the body in many instances.

The epidemic began on the 3d of March, and continued until June. Out of the first half of the cases, twenty-nine were males; while of the last half, eleven only were males. The deaths took place in all the fatal cases before the seventh day; many on the fourth day, more on the fifth and sixth days, and most on the seventh day of the disease.

Dr. Baker entered into a careful investigation of the cause of the epidemic. But after a study of the local conditions actually found in connection with the epidemic—as those of soil, sewerage, sources of malaria, and general and private sanitary conditions,—he concludes that there was no evidence of any influence capable of acting on the human system through the atmosphere so different in the infected localities from others in which the disease did not exist as to warrant the belief that such influence was the

cause of the epidemic. He reports, therefore, against the malarial view of the origin of the malady, and offers a series of facts tending to show that some poison in the food of the persons affected was the cause. His evidence leads him to the view taught by Dr. B. W. Richardson of the origin of cerebro-spinal meningitis—viz., that it is induced by the eating of a fungus of wheat in wheaten flour, the effects according to this theory being similar to those produced by the ergot of rye. The ergot of wheat, Dr. Baker contends, is more active than the ergot of rye, and retains its properties longer. Its worst effects are not produced by a single large dose, but by continued small doses. The symptoms excited by this agent are, he maintains, the same as those that were observed in the patients who suffered in the epidemic he had to report upon; and he traced the fact that the flour used in the locality of the epidemic was from wheat grown near the spot, which this year contained much diseased grain or smut. The distribution of no other article of food except the flour accounts, he believes, for the origin and spread of the malady.

ACTION OF SULPHUR PREPARATIONS IN CHRONIC LEAD-POISONING.

By the advice of Dr. Liebreich, M. Siew has attempted to chemically combine the lead distributed through the organism, so as to render it harmless. To satisfy himself of the possibility of doing this, he injected subcutaneously some chromate of lead; and after introducing suitable sulphur compounds, he tested for sulphide of lead at those points. If alkaline sulphides were administered, the red color of the injected tissue remained unchanged; but if a rabbit partook of glycosulphuric acid, which is easily soluble in water, and forms with lead a very insoluble salt, which passes off unchanged from the system, then the injected part showed a black spot. Siew considers this to be sulphide of lead, from the reduction of the glycosulphate of lead. That this salt is really reduced by the organism is proved by feeding animals a long time on glycosulphate of lead, when the walls of the stomach are found to be black. He does not state his conclusions.

BACTERIA IN DISEASE.—Dr. Hiller, of Winden, has come to the conclusion, after many experiments, that bacteria are incapable of exciting inflammatory action of fever: that they can not multiply, unless in the presence of putrid material, or after death, through the stoppage of the circulation; but when present after death, this is no proof of their existence before that time, but for reasons as given.

THE GERM THEORY OF DISEASE.

THAT hay fever, a disease quite prevalent during the present month, is traceable to vegetable organisms, is a curious discovery, tending toward the confirmation of the theory that disease is originated and propagated by independent organic germs, recently made by Professor Binz, of Bonn. The investigator has been himself subject to the malady, and has pursued his researches over a number of years.

On examining the nasal secretions with a powerful immersion lens, he found the organisms to be absent except when the disease attacked him during the spring. Then the parasitical bodies were clearly seen in motion, vibrating on the slide and increasing in size after several days. By using a neutral solution of sulphate of quinine, applied by the nasal douche, Professor Binz found that the animalculæ were completely destroyed, and that subsequent examination failed to show their existence in the secretions.

PROTECTION FROM YELLOW FEVER.

IN a report on yellow fever, recently published, it is shown that this disease has never appeared in any climate at the height of 2,500 feet. In the island of Dominica, a hill-top not more than 1,500 feet high is always healthy, even when the fever is epidemic at its base. In San Domingo, similar observations have been made. The highest elevation at which yellow fever has occurred in the United States is 460 feet, in Arkansas; and the medical men of this country now hold that the stratum of air infected by the poison is heavier than pure air, and therefore sinks, and they recommend that in unhealthy districts houses and hospitals should be built on tall piles, so as to be above the fever stratum. But where hills are near, the best remedy will be to carry the patients up to a height of 500 feet.

BORAX FOR COLDS.

A WRITER in *The Medical Record* cites a number of cases in which borax has proved a most effective remedy in certain forms of colds. He states that, in sudden hoarseness or loss of voice, in public speakers or singers, from colds, relief for an hour or so, as by magic, may be often obtained by slowly dissolving, and partially swallowing a lump of borax, the size of a garden pea, or about three or four grains held in the mouth for ten minutes before speaking or singing. This produces a profuse secretion of saliva, or "watering" of the mouth and throat, probably restoring the voice or tone to the dried vocal cords, just as wetting brings back the missing notes to a flute when it is too dry.

DYSPEPSIA CURE, AND USE OF PEPSIN.

THE views of Dr. Schacht concerning digestion have been confirmed by Professor Leube (the inventor of Leube's meat solution), of Jena. He says: 1. No condition of the stomach has yet been observed in which pepsin is altogether absent. 2. The cause of indigestion is generally the absence of sufficient acid. 3. The action of pepsin in a solution of albumen resembles that of a ferment, and it will continue so to act without end, merely by the addition of more acid. 4. Alcoholic solutions, especially wine, on account of the tannin it contains, should be avoided as vehicles for pepsin. Finally, he recommends, in case of indigestion, a solution of chopped meat with water, adding a small proportion of pure muriatic acid, and some thickening. He finds such a solution very nourishing, and reports excellent results. These views and experiments are not novel, but exhibit the old doctrine as to digestion, and it appears to be the sound one. The secretion of the pancreas is now thought necessary to the digestion of fatty substances; and where these are used to any extent—as in cod-liver oil—it would be best to take the new medicine pancreatin, which acts best with an alkali instead of an acid, or to use a little of the solution of the pancreas of freshly killed animals.

TREATMENT OF OBSTINATE CONSTIPATION.—Dr. Macario, of Nice, in a communication to the *Lyon Medical*, observes that in treating constipation most practitioners confine themselves to enemata, laxatives, or more or less irritating purgatives, which in point of fact rather aggravate than cure the affection. He therefore wishes to make known what he says may be truly termed an "heroic" remedy, which he has employed during twelve years with such constant success that he can not but regard it as infallible.

Constipation, as every one knows, may be produced either by intestinal excitement, with deficiency of secretion (nervous constipation), or in consequence of deficient contraction of the muscular coat of the intestine. Here it is produced by atony or intestinal indolence, which bad anti-hygienic habits have induced and keep up. The prolonged contact of the feces with the rectum blunts the sensibility of the mucous and muscular tissues, and the synergical contraction of the upper portions of the large intestine either does not take place or does so in an insufficient degree, constipation being the result. In *nervous* constipation the following pill should be given: Pure

sulphate of iron, ten centigrammes; socotrine aloes, five centigrammes; atropine, from one-third to one-half of a milligramme. In the *atonic* form, for atropine one centigramme of powder of nux vomica may be substituted. By the aid of these pills regular stools may be procured, even in the subjects of obstinate constipation due to *ramollissement* of the brain and chronic myelitis with paraplegia. Dr. Macario gives from one to three pills immediately after dinner, the object being to produce one easy, natural, non-diarrhœic evacuation. If more than this is effected, the dose is to be diminished, one or two pills sufficing in most cases. The use of these "antistyptic" pills ought not to be continued indefinitely, a longer interval being allowed to elapse between their administration in proportion as the constipation diminishes, it being of importance to allow the organs to resume their spontaneous action without any auxiliary. If the constipation returns, the pills can be again had recourse to.

NEW REMEDY FOR HAY FEVER.

HELMHOLTZ, having been made aware of the poisonous action of quinine upon infusoria, determined to make an experiment with that substance on the vibronic bodies he had discovered in the nasal secretion of persons suffering from hay fever, and for that purpose he employed a neutral and weak solution of quinine, which he poured into both nostrils with a pipette while the patient was in the recumbent position, with the head low. The result was most satisfactory, and the cure, which took place in the case of Prof. Helmholtz, has likewise followed in two other patients who made a trial of the remedy. Dr. Frickhöfer, of Schwalbach, and Prof. Busch, of Bonn, have also succeeded in curing the affection by the same method. Prof. Binz suggests that a tepid solution of quinine should be used, and that, instead of a pipette, Weber's simple but effective nose-douche should be employed for applying the quinine solution, care being taken that the quinine is free from adulteration. (49)

PHOSPHORUS AS A CURE FOR CATARACT.—Dr. Combas gives a case of a girl, aged twenty-four, of nervous, lymphatic temperament, suffering from capsulo-lenticular cataract, hardly able to discern light from darkness; suffered frequent headaches. Two or three drops of phosphorized oil were dropped into the eye daily, and frictions of the same used over the forehead. After four months of this treatment, which was used perseveringly, the eye improved, colors could be distinguished, and the opacity of the lens so far diminished that it could not be discerned at a distance of two or three paces.

TESTING URINE FOR ALBUMEN AND SUGAR.

THE following tests by Siebold are so simple that an inexperienced person can employ them for testing urine. In testing for albumen, ammonia is added to the urine until it is slightly alkaline; it is then filtered, made slightly acid with dilute acetic acid, and a portion of the mixture boiled. This portion is compared with the cold portion, when any turbidity is easily detected. In testing for sugar, he employs a modification of Roberts' process, whereby an inexperienced analyst can detect $\frac{1}{20}$ per cent of sugar, while a more experienced person can easily recognize half that quantity. About one and a half or two fluid drachms of Fehling's solution is heated to boiling, and five to ten drops of the urine added. If much sugar be present, a yellow or brick-red precipitate is formed. If this does not happen, add 50 or 80 minims more of urine, and set aside to cool. If the liquid is not milky when cold, less than $\frac{1}{40}$ per cent sugar is present.

NEW DIAPHORETIC AND SIALOGOGUE.

At a meeting of the Société de Biologie de Paris, M. Coutinho, of Pernambuco, brought under the notice of the members a new therapeutic agent he had brought from Brazil. It belongs to the rutaceæ, smells like hay, but has no taste; the leaves are the active part, but do not appear to contain any alkaloid. An infusion of them, given in drachm doses, produces in the course of a few minutes copious perspiration on the face and over the whole body, quite independently of any outward application of heat, and so abundant a discharge of saliva that speech is rendered almost impossible, and upwards of a litre has been collected in the course of two hours. It also causes great increase of the bronchial secretion. It is obvious that it may be used with advantage in eruptive fevers, bronchitis, pneumonia, and erysipelas. The name of the new remedy is *Jaborandi*.

PRESERVING GUM-ARABIC MUCILAGE.

A WRITER in the *Journal of Pharmacy* states that the instability of mucilage of gum-arabic may be overcome by mixing with tolu water. Tolu water is prepared by rubbing two fluid drachms saturated tincture of tolu with four drachms carbonate of magnesia, and then adding two pints of water, and filtering. It is believed that tolu prevents changes in liquids, upon the same principle and as effectually as benzoin obviates rancidity in unctuous substances. Its preservative influence might be utilized in the preparation of many syrups and mixtures which are remarkable for instability.

MEDICAL USES OF THE TOMATO.

MEDICAL authorities ascribe to the tomato the following very important qualities: 1. The tomato is one of the most powerful aperients of the liver and other organs; where calomel is indicated, it is one of the most effective and the least hurtful medical agents known. 2. A chemical extract will be obtained from it that will supersede the use of calomel in the cure of disease. 3. Diarrhœa has been successfully treated with this article alone. 4. When used as an article of diet it is almost sovereign for dyspepsia and indigestion. 5. It should be constantly used for daily food; either cooked or raw, or in the form of catsup, it is the most healthy article now in use. Tomatoes may be preserved by slightly scalding and skinning them and putting them into bottles; these being set in boiling water for a few minutes, and corked and sealed, the fruit will keep as long as desired, and if eaten when first opened will have the same taste as when just picked from the vines. A better way, perhaps, is to peel the tomatoes, boil them slightly so as to expel the air, and then put them in heated bottles and cork at once. All depends on the exclusion of the air. The more perfectly this is done, the longer the fruit may be preserved. (137)

ICED CLYSTERS IN DYSENTERY.—Dr. Wenzel, having had occasion to treat a great number of cases of dysentery, has found the best remedy to consist in the injection of ice-water into the rectum. It is an inoffensive, economical treatment, and gives extremely satisfactory results. The first case the doctor treated in this manner was one of severe dysentery. There was intense fever, abdominal pains, excruciating tenesmus, and profuse sanguineous evacuations. To check the hemorrhage, injections of ice-water were ordered every two hours, which not only caused the sanguineous evacuations to cease, but also removed the tenesmus, enteric pains and fever. The beneficial effect of these injections was so evident that the patient urgently demanded their repetition whenever the pains threatened to reappear. Dr. Wenzel now considers this treatment more satisfactory than any other in acute cases, although in chronic cases it can only be expected to afford a temporary and palliative effect.

PURE glycerin should not produce, when locally applied, a burning sensation, which it always does when the fatty acids are not all extracted. But even absolutely pure glycerin, when undiluted, is a water-extracting body. It should therefore, when used as a cosmetic, or for medical application, be always diluted with water.